



1

SEQUENCE LISTING

<110> EVANS, RONALD M.

<120> XENOBIOTIC COMPOUND MODULATED EXPRESSION SYSTEMS AND  
USES THEREFOR

<130> 088802-5211

<140> 09/840,008

<141> 2001-04-20

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<151> 1999-01-08

<150> 09/458,366

<151> 1999-12-09

<150> 09/005,286

<151> 1998-01-09

<160> 44

<170> PatentIn Ver. 2.1

<210> 1

<211> 2068

<212> DNA

<213> Homo sapiens

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<221> CDS

<222> (583)..(1887)

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cagactgatg aaatgcgctc agaattactt agacaaagcg gatatttgcc actctcttcc 120

ccttttcctg tgtttttgta gtgaagagac ctgaaagaaa aaagtaggga gaacataatg 180

agaacaaata cggtaatctc ttcatttgct agttcaagtg ctggacttgg gacttaggag 240

gggcaatgga gccgcttagt gcctacatct gacttggact gaaatatagg tgagagacaa 300

gattgtctca tatccgggga aatcataacc tatgactagg acgggaagag gaagcactgc 360

ctttacttca gtgggaatct cggcctcagc ctgcaagcca agtggttcaca gtgagaaaag 420

caagagaata agctaatact cctgtcctga acaaggcagc ggctccttgg taaagctact 480

ccttgatcga tcctttgcac cggattgttc aaagtggacc ccaggggaga agtcggagca 540

aagaacttac caccaagcag tccaagaggc ccagaagcaa ac ctg gag gtg aga 594  
Met Glu Val Arg

ccc aaa gaa agc tgg aac cat gct gac ttt gta cac tgt gag gac aca	642
Pro Lys Glu Ser Trp Asn His Ala Asp Phe Val His Cys Glu Asp Thr	
5 10 15 20	
gag tct gtt cct gga aag ccc agt gtc aac gca gat gag gaa gtc gga	690
Glu Ser Val Pro Gly Lys Pro Ser Val Asn Ala Asp Glu Glu Val Gly	
25 30 35	
ggg ccc caa atc tgc cgt gta tgt ggg gac aag gcc act ggc tat cac	738
Gly Pro Gln Ile Cys Arg Val Cys Gly Asp Lys Ala Thr Gly Tyr His	
40 45 50	
ttc aat gtc atg aca tgt gaa gga tgc aag ggc ttt ttc agg agg gcc	786
Phe Asn Val Met Thr Cys Glu Gly Cys Lys Gly Phe Phe Arg Arg Ala	
55 60 65	
atg aaa cgc aac gcc cgg ctg agg tgc ccc ttc cgg aag ggc gcc tgc	834
Met Lys Arg Asn Ala Arg Leu Arg Cys Pro Phe Arg Lys Gly Ala Cys	
70 75 80	
gag atc acc cgg aag acc cgg cga cag tgc cag gcc tgc cgc ctg cgc	882
Glu Ile Thr Arg Lys Thr Arg Arg Gln Cys Gln Ala Cys Arg Leu Arg	
85 90 95 100	
aag tgc ctg gag agc ggc atg aag aag gag atg atc atg tcc gac gag	930
Lys Cys Leu Glu Ser Gly Met Lys Lys Glu Met Ile Met Ser Asp Glu	
105 110 115	
gcc gtg gag gag agg cgg gcc ttg atc aag cgg aag aaa agt gaa cgg	978
Ala Val Glu Glu Arg Arg Ala Leu Ile Lys Arg Lys Lys Ser Glu Arg	
120 125 130	
aca ggg act cag cca ctg gga gtg cag ggg ctg aca gag gag cag cgg	1026
Thr Gly Thr Gln Pro Leu Gly Val Gln Gly Leu Thr Glu Glu Gln Arg	
135 140 145	
atg atg atc agg gag ctg atg gac gct cag atg aaa acc ttt gac act	1074
Met Met Ile Arg Glu Leu Met Asp Ala Gln Met Lys Thr Phe Asp Thr	
150 155 160	
acc ttc tcc cat ttc aag aat ttc cgg ctg cca ggg gtg ctt agc agt	1122
Thr Phe Ser His Phe Lys Asn Phe Arg Leu Pro Gly Val Leu Ser Ser	
165 170 175 180	
ggc tgc gag ttg cca gag tct ctg cag gcc cca tcg agg gaa gaa gct	1170
Gly Cys Glu Leu Pro Glu Ser Leu Gln Ala Pro Ser Arg Glu Glu Ala	
185 190 195	
gcc aag tgg agc cag gtc cgg aaa gat ctg tgc tct ttg aag gtc tct	1218
Ala Lys Trp Ser Gln Val Arg Lys Asp Leu Cys Ser Leu Lys Val Ser	
200 205 210	
ctg cag ctg cgg ggg gag gat ggc agt gtc tgg aac tac aaa ccc cca	1266
Leu Gln Leu Arg Gly Glu Asp Gly Ser Val Trp Asn Tyr Lys Pro Pro	
215 220 225	

gcc gac agt ggc ggg aaa gag atc ttc tcc ctg ctg ccc cac atg gct	1314
Ala Asp Ser Gly Gly Lys Glu Ile Phe Ser Leu Leu Pro His Met Ala	
230 235 240	
gac atg tca acc tac atg ttc aaa ggc atc atc agc ttt gcc aaa gtc	1362
Asp Met Ser Thr Tyr Met Phe Lys Gly Ile Ile Ser Phe Ala Lys Val	
245 250 255 260	
atc tcc tac ttc agg gac ttg ccc atc gag gac cag atc tcc ctg ctg	1410
Ile Ser Tyr Phe Arg Asp Leu Pro Ile Glu Asp Gln Ile Ser Leu Leu	
265 270 275	
aag ggg gcc gct ttc gag ctg tgt caa ctg aga ttc aac aca gtg ttc	1458
Lys Gly Ala Ala Phe Glu Leu Cys Gln Leu Arg Phe Asn Thr Val Phe	
280 285 290	
aac gcg gag act gga acc tgg gag tgt ggc cgg ctg tcc tac tgc ttg	1506
Asn Ala Glu Thr Gly Thr Trp Glu Cys Gly Arg Leu Ser Tyr Cys Leu	
295 300 305	
gaa gac act gca ggt ggc ttc cag caa ctt cta ctg gag ccc atg ctg	1554
Glu Asp Thr Ala Gly Gly Phe Gln Gln Leu Leu Glu Pro Met Leu	
310 315 320	
aaa ttc cac tac atg ctg aag aag ctg cag ctg cat gag gag gag tat	1602
Lys Phe His Tyr Met Leu Lys Lys Leu Gln Leu His Glu Glu Glu Tyr	
325 330 335 340	
gtg ctg atg cag gcc atc tcc ctc ttc tcc cca gac cgc cca ggt gtg	1650
Val Leu Met Gln Ala Ile Ser Leu Phe Ser Pro Asp Arg Pro Gly Val	
345 350 355	
ctg cag cac cgc gtg gtg gac cag ctg cag gag caa ttc gcc att act	1698
Leu Gln His Arg Val Val Asp Gln Leu Gln Glu Gln Phe Ala Ile Thr	
360 365 370	
ctg aag tcc tac att gaa tgc aat cgg ccc cag cct gct cat agg ttc	1746
Leu Lys Ser Tyr Ile Glu Cys Asn Arg Pro Gln Pro Ala His Arg Phe	
375 380 385	
ttg ttc ctg aag atc atg gct atg ctc acc gag ctc cgc agc atc aat	1794
Leu Phe Leu Lys Ile Met Ala Met Leu Thr Glu Leu Arg Ser Ile Asn	
390 395 400	
gct cag cac acc cag cgg ctg ctg cgc atc cag gac ata cac ccc ttt	1842
Ala Gln His Thr Gln Arg Leu Leu Arg Ile Gln Asp Ile His Pro Phe	
405 410 415 420	
gct acg ccc ctc atg cag gag ttg ttc ggt atc aca ggt agc tga	1887
Ala Thr Pro Leu Met Gln Glu Leu Phe Gly Ile Thr Gly Ser	
425 430	
gtggctgtcc ttgggtgaca cctccgagag gtagttagac ccagagccct ctgagtcgcc	1947
actcccgggc caagacagat ggacactgcc aagagccgac aatgccctgc tggcctgtct	2007
ccctagggaa ttctgtctat gacagctggc tagcattcct caggaaggac atggggtgcc	2067

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<210> 2  
 <211> 434  
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 <213> Homo sapiens

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 Cys Glu Asp Thr Glu Ser Val Pro Gly Lys Pro Ser Val Asn Ala Asp  
 20 25 30  
 Glu Glu Val Gly Gly Pro Gln Ile Cys Arg Val Cys Gly Asp Lys Ala  
 35 40 45  
 Thr Gly Tyr His Phe Asn Val Met Thr Cys Glu Gly Cys Lys Gly Phe  
 50 55 60  
 Phe Arg Arg Ala Met Lys Arg Asn Ala Arg Leu Arg Cys Pro Phe Arg  
 65 70 75 80  
 Lys Gly Ala Cys Glu Ile Thr Arg Lys Thr Arg Arg Gln Cys Gln Ala  
 85 90 95  
 Cys Arg Leu Arg Lys Cys Leu Glu Ser Gly Met Lys Lys Glu Met Ile  
 100 105 110  
 Met Ser Asp Glu Ala Val Glu Glu Arg Arg Ala Leu Ile Lys Arg Lys  
 115 120 125  
 Lys Ser Glu Arg Thr Gly Thr Gln Pro Leu Gly Val Gln Gly Leu Thr  
 130 135 140  
 Glu Glu Gln Arg Met Met Ile Arg Glu Leu Met Asp Ala Gln Met Lys  
 145 150 155 160  
 Thr Phe Asp Thr Thr Phe Ser His Phe Lys Asn Phe Arg Leu Pro Gly  
 165 170 175  
 Val Leu Ser Ser Gly Cys Glu Leu Pro Glu Ser Leu Gln Ala Pro Ser  
 180 185 190  
 Arg Glu Glu Ala Ala Lys Trp Ser Gln Val Arg Lys Asp Leu Cys Ser  
 195 200 205  
 Leu Lys Val Ser Leu Gln Leu Arg Gly Glu Asp Gly Ser Val Trp Asn  
 210 215 220  
 Tyr Lys Pro Pro Ala Asp Ser Gly Gly Lys Glu Ile Phe Ser Leu Leu  
 225 230 235 240  
 Pro His Met Ala Asp Met Ser Thr Tyr Met Phe Lys Gly Ile Ile Ser  
 245 250 255

Q1  
 Out

Phe Ala Lys Val Ile Ser Tyr Phe Arg Asp Leu Pro Ile Glu Asp Gln  
                   260                  265                  270  
 Ile Ser Leu Leu Lys Gly Ala Ala Phe Glu Leu Cys Gln Leu Arg Phe  
                   275                  280                  285  
 Asn Thr Val Phe Asn Ala Glu Thr Gly Thr Trp Glu Cys Gly Arg Leu  
                   290                  295                  300  
 Ser Tyr Cys Leu Glu Asp Thr Ala Gly Gly Phe Gln Gln Leu Leu Leu  
 305                  310                  315                  320  
 Glu Pro Met Leu Lys Phe His Tyr Met Leu Lys Lys Leu Gln Leu His  
                   325                  330                  335  
 Glu Glu Glu Tyr Val Leu Met Gln Ala Ile Ser Leu Phe Ser Pro Asp  
                   340                  345                  350  
 Arg Pro Gly Val Leu Gln His Arg Val Val Asp Gln Leu Gln Glu Gln  
                   355                  360                  365  
 Phe Ala Ile Thr Leu Lys Ser Tyr Ile Glu Cys Asn Arg Pro Gln Pro  
                   370                  375                  380  
 Ala His Arg Phe Leu Phe Leu Lys Ile Met Ala Met Leu Thr Glu Leu  
 385                  390                  395                  400  
 Arg Ser Ile Asn Ala Gln His Thr Gln Arg Leu Leu Arg Ile Gln Asp  
                   405                  410                  415  
 Ile His Pro Phe Ala Thr Pro Leu Met Gln Glu Leu Phe Gly Ile Thr  
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Gly Ser

<210> 3  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Putative SXR  
           response element from the steroid hydroxylase,  
           rCYP3A1

<400> 3  
 tagacagttc atgaagttca tctac

25

<210> 4  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Putative SXR  
           response element from the steroid hydroxylase,

## rCYP3A2

<400> 4  
taagcagttc ataaagttca tctac 25

<210> 5  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR  
response element from the steroid hydroxylase,  
rUGT1A6

<400> 5  
actgtagttc ataaagttca catgg 25

<210> 6  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR  
response element from the steroid hydroxylase,  
rbCYP2C1

<400> 6  
caatcagttc aacagggttc accaat 26

<210> 7  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR  
response element from the steroid hydroxylase,  
rP450R

<400> 7  
cacaggtgag ctgaggccag cagcaggtcg aaa 33

<210> 8  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR  
response element from the steroid hydroxylase,  
rCYP2A1

<400> 8  
gtgcaggttc aactggaggt caacatg

27

<210> 9  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR  
response element from the steroid hydroxylase,  
rCYP2A2

<400> 9  
gtgctgggttc aactggaggt cagtatg

27

<210> 10  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR  
response element from the steroid hydroxylase,  
rCYP2C6

<400> 10  
agtctagttc agtggggggt cagtctt

27

<210> 11  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR  
response element from the steroid hydroxylase,  
hCYP2E1

<400> 11  
gagatgggttc aaggaagggt cattaac

27

<210> 12  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 0 nucleotides

<400> 12  
catagtcagg tcaaggtcag atcaac

26

*Ant*

<210> 13  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Direct repeat  
 with spacer of 1 nucleotides

<400> 13  
 catagtcagg tcataggtca gatcaac

27

<210> 14  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Direct repeat  
 with spacer of 2 nucleotides

<400> 14  
 catagtcagg tcaataggtc agatcaac

28

<210> 15  
 <211> 29  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Direct repeat  
 with spacer of 3 nucleotides

<400> 15  
 catagtcagg tcatataggt cagatcaac

29

<210> 16  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Direct repeat  
 with spacer of 4 nucleotides

<400> 16  
 catagtcagg tcatataagg tcagatcaac

30

<210> 17  
 <211> 31  
 <212> DNA  
 <213> Artificial Sequence



<220>  
 <223> Description of Artificial Sequence: Direct repeat  
 with spacer of 5 nucleotides  
  
 <400> 17  
 catagtcagg tcatatatag gtcagatcaa c 31  
  
 <210> 18  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Direct repeat  
 with spacer of 6 nucleotides  
  
 <400> 18  
 catagtcagg tcatatataa ggtcaagatc aac 33  
  
 <210> 19  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Direct repeat  
 with spacer of 7 nucleotides  
  
 <400> 19  
 catagtcagg tcatatatat aggtcagatc aac 33  
  
 <210> 20  
 <211> 36  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Direct repeat  
 with spacer of 10 nucleotides  
  
 <400> 20  
 catagtcagg tcatatatat ataaggtcag atcaac 36  
  
 <210> 21  
 <211> 41  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Direct repeat  
 with spacer of 15 nucleotides  
  
 <400> 21  
 catagtcagg tcatagtagt agtagtagag gtcagatcaa c 41

<210> 22  
<211> 17  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Example of a  
response element suitable for practice of the  
invention method

<220>  
<221> modified\_base  
<222> (7)..(11)  
<223> This region may encompass 5, 4 or 3 nucleotides,  
independently selected from a, c, t or g

<400> 22  
agttcannnn ntgaact

17

<210> 23  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Example of a  
response element suitable for practice of the  
invention method

<220>  
<221> modified\_base  
<222> (7)..(12)  
<223> a, c, t or g

<400> 23  
tgaactnnnn nnaggtca

18

<210> 24  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 24  
tgaactcaaa ggaggtca

18

<210> 25  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Inverted  
 repeat response element with spacer of 0  
 nucleotides

<400> 25  
 agcttaggtc atgaccta 18

<210> 26  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Inverted  
 repeat response element with spacer of 1  
 nucleotides

<400> 26  
 agcttaggtc agtgaccta 19

<210> 27  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Inverted  
 repeat response element with spacer of 2  
 nucleotides

<400> 27  
 agcttaggtc acgtgaccta 20

<210> 28  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Inverted  
 repeat response element with spacer of 3  
 nucleotides

<400> 28  
 agcttaggtc acagtaccta a 21

<210> 29  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

Q1  
Ans

<220>  
 <223> Description of Artificial Sequence: Inverted  
 repeat response element with spacer of 4  
 nucleotides

<400> 29  
 agcttaggtc acatgtgacc ta 22

<210> 30  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Inverted  
 repeat response element with spacer of 5  
 nucleotides

<400> 30  
 agcttaggtc acactgtgac cta 23

<210> 31  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Inverted  
 repeat response element with spacer of 6  
 nucleotides

<400> 31  
 agctttgaac tcaaaggagg tca 23

<210> 32  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: IR-M

<400> 32  
 agcttacgtc atgacgta 18

<210> 33  
 <211> 33  
 <212> DNA  
 <213> Homo sapiens

<400> 33  
 tagaatatga actcaaagga ggtagtgag tgg 33

<210> 34  
 <211> 33  
 <212> DNA  
 <213> Homo sapiens

<400> 34  
 tagaatatga actcaaagga ggtaagcaaa ggg 33

<210> 35  
 <211> 32  
 <212> DNA  
 <213> Homo sapiens

<400> 35  
 tagaatatta actcaatgga ggcagtgagt gg 32

<210> 36  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide for PCR

<400> 36  
 gagcaattcg ccattactct gaagt 25

<210> 37  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide for PCR

<400> 37  
 gtccttgggg tcttctacct ttctc 25

<210> 38  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide for PCR

<400> 38  
 gacgatttgg atctggacat gttgg 25

at  
 Out

<210> 39  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide for PCR

<400> 39  
 tgaacttcac gaact

15

<210> 40  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 40  
 gttttcatct gagcgtccat cagct

25

<210> 41  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Illustrative  
 peptide

<400> 41  
 Arg Gly Lys Thr Cys Ala  
 1 5

<210> 42  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 42  
 tggtttcat gttct

15

<210> 43  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 43  
acaacttcac gaact

15

<210> 44  
<211> 17  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Example of a  
response element suitable for practice of the  
invention method

Q1  
Ant  
<220>  
<221> modified\_base  
<222> (7)..(11)  
<223> This region may encompass 5, 4 or 3 nucleotides,  
independently selected from a, c, t or g

<400> 44  
aggtcannnn naggtca

17